IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

JAMES H. JACKSON,	:	
Plaintiff	:	**No. 1:11-cv-1527**
	:	
v.	:	
	:	**(Chief Judge Kane)**
LOUISVILLE LADDER INC.,	:	
and W.W. GRAINGER, INC.,	:	
Defendants	:	

MEMORANDUM

Before the Court is Defendants motion in limine to preclude Plaintiff James Jackson from presenting the expert opinion of Drs. Jack Vinson and James Glancey at trial. (Doc. No 32.) The motion has been fully briefed, and a Daubert hearing was held on January 10, 2013. For the reasons that follow, the Court will deny the motion.

I. BACKGROUND

Plaintiff James H. Jackson filed the above-captioned action after suffering injuries when he fell off a ladder on September 16, 2009. (Doc. No. 1.) After the Court granted Defendants Louisville Ladder and W.W. Grainger's motion to dismiss, Plaintiff filed an amended complaint on December 5, 2011. (Doc. No. 16.) In his amended complaint, Plaintiff brought the following three state-law causes of action pursuant to 28 U.S.C. § 1332: (1) a negligence claim against Defendant Louisville Ladder; (2) a strict product liability claim against Defendant Louisville Ladder; and (3) a strict product liability claim against Defendant W.W. Grainger. After discovery, the following facts of record are undisputed unless otherwise noted.

On September 16, 2009, Plaintiff James Jackson was using a Louisville Ladder Model AS2106 6' aluminum stepladder in the course and scope of his employment for Messiah College.

(Doc. Nos. 31, 35 ¶ 3.) Messiah College purchased the ladder from W.W. Grainger on November 13, 2008. (Id. ¶ 4.) Plaintiff alleges that while he was standing on the ladder it suddenly malfunctioned and collapsed, causing him to fall and injure his head and cervical spine. (Id. ¶ 5.) The ladder at issue is an aluminum step ladder; the front section of the A-frame ladder has five steps connected to side rails by rivets. (Id. ¶ 7.) There are aluminum gussets connecting the lowest step to the side rails, and folding spreaders connect the front and rear sections of the ladder. (Id.) Plaintiff alleges that he fell because the ladder was defective.

At the time of the incident, Mr. Jackson was 5'4" tall and weighed 150 lbs. (Id. ¶ 8.) Plaintiff indicated that he understands that, in order to properly use a stepladder, the user must separate the front and back sections of the ladder, place the ladder on a flat surface so all four feet are on the floor, and push down and lock the spreaders. (Id. ¶ 9.) He testified that Messiah College purchased the ladder for him and that he stored it in a truck, which he and another employee used in the course and scope of their employment. Mr. Jackson testified that he used the ladder a few times prior to September 16, 2009, without incident. (Id. ¶ 10.)

On September 16, 2009, Plaintiff set up his ladder in a room at Messiah College where the ceiling was leaking. (Id. ¶ 13.) After making sure that all four feet were flat on the ground, and that the spreader braces were locked, Mr. Jackson climbed the ladder to the third or fourth step to move the suspending ceiling tiles to allow him to view the ceiling of the room. (Id. ¶¶ 13-15.) He then climbed down the ladder and retrieved a small flashlight from his pouch before climbing back up the ladder, one step at a time, while holding the flashlight in his right hand. (Id. ¶¶ 16-17.) As he stood on the fourth step of the ladder, it felt stiff and did not move while he was on it. (Id. ¶ 18.) While Plaintiff was looking at the ceiling with his flashlight, the ladder

started moving slowly and caused Plaintiff to fall to the floor. (Id. ¶ 20.) After staying on the ground for an unknown period of time, Mr. Jackson got up and drove himself to his employer's safety department. (Id. ¶ 22.)

In support of his negligence and strict liability claims, Plaintiff produced an August 23, 2012 report authored by Jack Vinson, Ph.D., P.E. and James L. Glancey, Ph.D., P.E. of Structural Mechanics Associates. (Doc. No. 31-5.) After examining and testing the subject ladder, reviewing design drawings, photographs, deposition testimony, and other data, Drs. Vinson and Glancey opined that: (1) the ladder rails and steps were defectively manufactured; (2) the quality control methods employed during manufacturing and after manufacturing were inadequate; (3) the subject ladder design is deficient in that foreseeable loads cause stresses to nearly reach or exceed the yield strength of the materials used in the design; (4) the ladder manufacturer failed to perform any structural analysis to determine if the ladder is structurally sound and safe; (5) a reasonable and prudent designer, manufacturer, and marketer of ladders would not have allowed the subject ladder to be produced and put on the market because the ladder was "under designed;" (6) Louisville Ladder's testing of the subject ladder was inadequate to determine that it was structurally adequate and safe; and (7) because of any or all of these defects, the subject ladder should never have entered the stream of commerce, and the collective effects of these defects led to the ladder's collapse and ultimately to Mr. Jackson's injuries. (Id. at 8-9.) Specifically, Plaintiff's experts found that the bottom step of the ladder failed, bending upward, leading to the failure of the adjacent shear brace and left front leg.

On October 4, 2012, Defendants filed a motion in limine to exclude these expert opinions (Doc. No. 32), and the Court held a Daubert hearing on January 10, 2013.

II. LEGAL STANDARD

A trial court has a special obligation to ensure that expert testimony is relevant and reliable. Kumho Tire Co. v. Carmichael, 526 U.S. 137, 147 (1999). Accordingly, the admission of scientific, technical, or other specialized knowledge is within the trial court's discretion. See General Elec. Co. v. Joiner, 522 U.S. 136, 146-47 (1997). A court's inquiry is controlled by Rule 702 of the Federal Rules of Evidence, which provides:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702. As the United States Court of Appeals for the Third Circuit has explained, these requirements represent a "trilogy of restrictions on expert testimony: qualification, reliability and fit." Schneider v. Fried, 320 F.3d 396, 404 (3d Cir. 2003).

To be "reliable," the expert's opinion "must be based on the 'methods and procedures of science' rather than on 'subjective belief or unsupported speculation'; the expert must have 'good grounds' for his or her belief." In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 742 (3d Cir. 1994) (quoting Daubert, 509 U.S. at 590). When considering the reliability requirement, the United States Supreme Court has held that the gatekeeping function requires the trial court to "make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." Kumho Tire, 526 U.S at 152. To meet this requirement, "a litigant has to make more than a prima facie showing that his expert's

methodology is reliable . . . [but] the evidentiary requirement of reliability is lower than the merits standard of correctness." Pineda v. Ford Motor Co., 520 F.3d 237, 244 (3d Cir. 2008). When evaluating the reliability of a witness's methodology, a court is guided by several factors drawn from Daubert:

> (1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Calhoun v. Yamaha Motor Corp., 350 F.3d 316, 321 (3d Cir. 2003) (citing In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 742 n.8 (3d Cir. 1994)). These factors "may or may not be pertinent in assessing reliability, depending on the nature of the issue, the expert's particular expertise, and the subject of his testimony." Kumho Tire, 526 U.S. at 150. Accordingly, the Rule 702 inquiry is a flexible one, and the court should also take into account any other relevant factors. Calhoun, 350 F.3d at 321. "[T]rial courts should focus 'solely on principles and methodology, not on the conclusions they generate.'" Montgomery Cnty. v. Microvote Corp., 320 F.3d 440, 448 (3d Cir. 2003) (quoting Daubert, 509 U.S. at 595).

The final requirement is fit, which means "the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact." Id. (quoting Schneider, 320 F.3d at 405). "Rule 702's helpfulness standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility." Daubert, 509 U.S. at 591-92. This inquiry goes primarily to relevance because expert opinion which does not relate to a disputed issue is not relevant and cannot assist the trier of fact as required by Rule 702. Id. As the Supreme Court has explained:

> The study of the phases of the moon, for example, may provide valid scientific "knowledge" about whether a certain night was dark, and if darkness is a fact in issue, the knowledge will assist the trier of fact. However (absent creditable grounds supporting such a link), evidence that the moon was full on a certain night will not assist the trier of fact in determining whether an individual was unusually likely to have behaved irrationally on that night.

Id. Like the typical relevance inquiry, the standard for analyzing the fit of an expert's analysis to the case at hand is "not that high." United States v. Ford, 481 F.3d 215, 219-20 (3d Cir. 2007) (quoting Paoli, 35 F.3d at 745). But, expert testimony can be powerful and misleading because of the difficulty in evaluating it, and the Third Circuit has cautioned that district courts should tread carefully when evaluating proffered expert testimony, paying special attention to the relevance prong of Daubert. Ford, 481 F.3d at 219 n.6.

III. DISCUSSION

In support of his design defect theory, Plaintiff engaged the services of Drs. Jack Vinson and James Glancey. Dr. Vinson, a professional engineer, holds an undergraduate degree in mechanical engineering and a Ph. D. in engineering, and has taught courses on engineering for several years. Similarly, Dr. Glancey holds an undergraduate degree and a Ph. D. in engineering, and has taught courses on mechanical engineering. Both have testified as experts in engineering in several cases.

In reaching their opinions in this case, Drs. Vinson and Glancey relied on two peer-reviewed research papers that they wrote, along with another peer-reviewed paper about dynamic testing of ladders. In preparing the papers upon which they relied, Plaintiff's experts conducted laboratory experiments, computational analyses, and computer modeling of ladders. The structural analysis research that the experts conducted revealed that some locations on the

ladders that they tested, such as rivet holes, were weaker than others, and that dynamic loads on a ladder can produce a fifty pound inward load at the foot of stepladders. While the experts' report contains several opinions, the instant motion focuses on the following opinion:

> 3. The subject ladder design is deficient in that foreseeable loads cause stresses to nearly reach and/or exceed the yield strength to the material with this design. Obviously dynamic loads and a reasonable factor of safety were not incorporated into the design. This constitutes a design defect.

(Doc. No. 31-5 at 9.) To reach this opinion, the experts conducted calculations based on a 250 pound user carrying a fifty pound load; however, in a supplement to their original report, the experts opined that the ladder at issue was unsafe for a 140 to 150 pound user. (See Doc. No. 31-8.) At the Daubert hearing, Dr. Vinson testified that he was the author of this portion of the expert report.

In their motion in limine, Defendants argue that Plaintiff's experts should be precluded from offering their design defect opinion at trial because it is based on insufficient and unreliable data, is not the product of a scientific inquiry, and does not fit the facts of this case. (Doc. No. 33 at 9.) Defendants do not challenge the qualifications of Plaintiff's experts for purposes of the instant motion but, instead, challenge the reliability of their methodology, including the information upon which they relied, and the fit of their opinion. Defendants' primary argument is that Plaintiff's design defect theory is based on gamed numbers and "circumstances assumed in the analysis to calculate a hypothetical breaking point rather than establish what happened to Mr. Jackson's ladder." (Id.)

First, the Court is satisfied that Drs. Vinson and Glancey relied on sufficient information in reaching their design defect opinion, and that the opinion is based on a reliable methodology.

Defendants argue that the experts relied on incorrect facts – including analyzing a step that Plaintiff was not standing on, and assuming that he was"dynamically loading" the ladder – failed to visit the scene of the accident, and do not know many of the details about what actually occurred on the date of the accident. (Id. at 10.) Moreover, Defendants argue that Plaintiff's design defect theory "is based solely on Dr. Vinson's mathematical structural analysis of the ladder[, and that] the calculations made by Dr. Vinson are not an attempt to calculate the stress at the time of Mr. Jackson's incident, but are an analysis of the 'foreseeable stresses' on the ladder in a worst case loading scenario . . . ." (Id. at 12.)

Rule 703 of the Federal Rules of Evidence governs the information upon which experts may rely, and provides that the data relied upon by an expert must be the type reasonably relied upon by experts in the particular field:

> An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted. But if the facts or data would otherwise be inadmissible, the proponent of the opinion may disclose them to the jury only if their probative value in helping the jury evaluate the opinion substantially outweighs their prejudicial effect.

Fed. R. Evid. 703. Similarly, Rule 702 requires expert opinions to be based on sufficient facts or data. Fed. R. Evid. 702. Moreover, to be reliable, an expert's opinion "must be based on the 'methods and procedures of science' rather than on 'subjective belief or unsupported speculation'; the expert must have 'good grounds' for his or her belief." Paoli R.R., 35 F.3d at 742 (quoting Daubert, 509 U.S. at 590).

According to their report, Drs. Glancey and Vinson reached their opinions after examining and testing the ladder at issue, and reviewing photographs of the ladder, drawings of the ladder components, deposition testimony, and several papers and studies on stepladders. (Doc. No. 31-5.) Drs. Vinson and Glancey testified at the Daubert hearing that they reached their opinion that the ladder at issue was defective by applying the dimensions of the ladder, the yield strength of the aluminum alloy used in the ladder, the stated weight capacity of the ladder, Plaintiff Jackson's weight, and a "dynamic load factor" of three, to widely-accepted engineering concepts such as the Euler-Bernoulli beam theory. The dynamic load factor of three represents the experts' computations, taken in connection with one of their peer-reviewed research papers, that a user conducting foreseeable tasks on a ladder can exert a force as high as three times his or her static weight. Through those experiments and calculations, Dr. Vinson reached his opinion that the ladder at issue could fail in the course of foreseeable dynamic tasks, and thus the ladder is defective. Given this opinion, and an inspection of the ladder, Dr. Vinson opines that the ladder at issue failed because of a design defect. Dr. Vinson testified that although he did not review Plaintiff Jackson's deposition testimony prior to preparing his expert report, he considered descriptions of the testimony.

Absent any persuasive argument or authority to the contrary, the Court is satisfied that Drs. Vinson and Glancey relied on facts and data upon which an expert in the field of engineering would reasonably rely, in accordance with Rules 702 and 703. Although Defendants generally argue that Plaintiff's experts' testimony is unreliable under Daubert, their arguments actually go to the weight that the opinion should be given rather than to whether the opinion is based on a reliable methodology. While "a litigant has to make more than a prima

facie showing that his expert's methodology is reliable . . . the evidentiary requirement of reliability is lower than the merits standard of correctness." Pineda, 520 F.3d at 244. Further, because Defendants offer no argument that the engineering principles employed by Dr. Vinson in his structural analysis are unreliable, the Court will not evaluate the reliability of the Euler-Bernoulli beam theory. Thus, the Court is satisfied that Plaintiff's design defect opinion is based on sufficient data and is reliable.

Defendants also argue that Dr. Vinson's design defect opinion is not helpful and does not fit the facts of this case because he did not attempt to calculate the actual loads or consider where Mr. Jackson was actually standing based on his testimony. In response, Plaintiff argues that Dr. Vinson's opinion that the ladder contained a design defect is helpful to the jury because the necessary calculations are beyond the purview of an average person.

"Rule 702's helpfulness standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility." Daubert, 509 U.S. at 591-92. The standard for analyzing the fit or helpfulness of an expert's analysis in the case at hand is "not that high." Ford, 481 F.3d at 219-20. Because Plaintiff Jackson's testimony in this case is that the ladder at issue collapsed while he was using it (Doc. No. 31-3 at 24-24), the Court finds that there is a sufficient connection between the facts in this case and Dr. Vinson's testimony as to whether the ladder could in fact collapse as Mr. Jackson described. The mathematical calculations required to reach an opinion that the ladder at issue could fail in the course of foreseeable activities by a user weighing 140-150 pounds are complicated and the Court is satisfied that the opinion would be helpful to the jury.

Moreover, the Court is not persuaded by Defendants' argument that Dr. Vinson's opinion does not fit the facts of this case because he cannot calculate the actual loads and stresses that Mr. Jackson would have generated at the time of the incident. The fact that some information is incomplete or inconclusive does not impact the Court's determination that Dr. Vinsons's opinion would be helpful to the jury. No expert opinion could definitively state exactly what the stresses on the ladder were at the moment that it failed, as there is no documentary evidence of the actual accident apart from the damaged ladder. Defendants will have an opportunity to point out the perceived weaknesses in Dr. Vinson's opinion during trial.

IV. CONCLUSION

Because the Court finds that Dr. Vinson's design defect opinion would be helpful to a jury and is based on sufficient information applied to a reliable methodology, the Court will deny Defendants' motion to exclude the opinion.

An order consistent with this memorandum follows.

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

JAMES H. JACKSON,	:	
Plaintiff	:	**No. 1:11-cv-1527**
	:	
v.	:	**(Chief Judge Kane)**
LOUISVILLE LADDER INC.,	:	
and W.W. GRAINGER, INC.,	:	
Defendants	:	

ORDER

AND NOW, on this 22nd day of April 2013, for reasons set forth in the accompanying memorandum, **IT IS HEREBY ORDERED THAT** Defendants' motion in limine to exclude the testimony of Plaintiff's liability experts (Doc. No. 32) is **DENIED**.

S/ Yvette Kane
Chief Judge Yvette Kane
United States District Court
Middle District of Pennsylvania